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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,599	10/03/2003	Robert C. Lam	01239/01092	6145

43215 7590 05/05/2005

BORGWARNER INC.  
PATENT DEPARTMENT  
3850 HAMLIN ROAD  
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EXAMINER
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SPERTY, ARDEN B

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/678,599

Applicant(s)

LAM ET AL.

Examiner

Arden B. Sperty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/01/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **NON-FINAL OFFICE ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 1-19 in the reply filed on 2/02/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Objections***

2. Claim 5 is objected to because of the following informalities: The claim is followed by two periods; only one period is necessary. Appropriate correction is required.

3. Claim 7 is objected to because of the following informalities: The claim is redundant because of the placement of the term "mixture," both before and after i) and ii). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 6 and 8-13 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5998307 to Lam et al.

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6. The reference teaches fibrous base material, the primary layer comprising aramid fibers (see Example 24, column 31), and the secondary layer comprising carbon particles in an amount of 0.2 to 20% (col. 30, lines 11-17). The aramid fibers have a CSF of greater than 450 and a fiber length of about 0.5 to 6 mm (col. 8, lines 51-55). The carbon particles have a size of about 0.5 to about 80 $\mu$  (col. 29, lines 50-55). The porosity of the primary layer is described at column 8, lines 49-51 as having a pore diameter of from about 2.0 to 15 microns. Air voids of at least about 50% are taught at column 11, lines 5-8. The primary layer further comprises a filler, such as diatomaceous earth (col. 9, lines 47-49).

7. Claims 1-4, 6-13, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6630416 to Lam et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

8. Regarding claims 1-4 and 6-7, the reference teaches a fibrous base material, having a primary fibrous layer and secondary friction-modifying particulate layer, impregnated with a resin. The friction modifying particles include silica particles, carbon powders, and other materials. The particles range in size from about 0.5 to about 80

microns. The particles are present in an amount of about 0.2 to about 20%, and cover about 3 to about 90% of the base material surface layer. See col. 9, lines 1-35.

9. Regarding claims 8-13, 16-18, the fibrous base material may comprise less fibrillated aramid fibers, carbon fibers (col. 7, lines 33-34), cotton fibers (col. 8, lines 45-50), graphite particles (col. 3, lines 13-18), and fillers such as diatomaceous earth (col. 8, lines 38-44). The aramid fibers have a length of from about 0.5 to 10 mm and a CSF of greater than about 300 (col. 8, lines 10-18). The pores of the base material range in size from about 2.0 to 25 microns in diameter, and there are readily available air voids of at least about 50% (col. 7, lines 53-60).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5998307 to Lam et al, as applied to claim 1 above, and further in view of US Patent 6130176 to Lam et al.

12. Regarding claim 14, the '307 reference teaches fibrous composites comprising various combinations of aramid fibers, cotton fibers (col. 9, lines 52-55), graphite particles (col. 9, lines 26+), and filler material (col. 9, lines 47+). Specific examples with amounts of each component are listed at column 9, line 60, through column 10, line 44.

The examples taught by the reference comprise the materials in proportions which are within, or encompassing, the claimed proportions. The examples also show that the optimal amount of each material is easily optimizable by one of ordinary skill in the art.

13. The '307 reference is silent, however, with respect to the inclusion of carbon fibers. The '176 reference teaches a similar friction material in which carbon fibers have been included, in an amount in accordance with claim 14, to increase porosity of the composite (col. 8, lines 26-44). Therefore, it would have been obvious to include the carbon fibers of the '176 reference in the composite of the '307 reference, motivated by the desire to increase porosity, thus improving the three-dimensional structure of the composite material.

14. Regarding claims 16, 17, and 18, the '307 reference teaches the fibrous base material having less fibrillated aramid fibers with a CSF of greater than 450 and a length of 0.5 to 6 mm (col. 8, lines 51-57). The '307 reference is silent with respect to the inclusion of carbon fibers. The '176 reference teaches a similar friction material in which carbon fibers have been included, in an amount in accordance with claim 14, to increase porosity of the composite (col. 8, lines 26-44). Therefore, it would have been obvious to include the carbon fibers of the '176 reference in the composite of the '307 reference, motivated by the desire to increase porosity, thus improving the three-dimensional structure of the composite material.

15. Regarding claim 19, the '307 reference teaches fibrous composites comprising various combinations of aramid fibers, cotton fibers (col. 9, lines 52-55), graphite particles (col. 9, lines 26+), and filler material (col. 9, lines 47+). Specific examples with

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amounts of each component are listed at column 9, line 60, through column 10, line 44.

The examples taught by the reference comprise the materials in proportions which are within, or encompassing, the claimed proportions. The examples also show that the optimal amount of each material is easily optimizable by one of ordinary skill in the art.

16. Claims 5, 14, 15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6630416 to Lam et al as applied to claim 1 above.

17. Regarding claim 5, although the '416 reference teaches silica and carbon particles as friction modifying particles, the reference is silent with respect to the amount of each. It would have been necessary for one of ordinary skill in the art to determine the optimal amounts. Therefore, absent a showing of unexpected results with the specifically claimed amounts, no patentable distinction is seen between the claimed invention and what would have been obvious to one of ordinary skill in the art.

18. Regarding claims 14 and 19, while the '416 reference teaches the structure as stated above, the reference is silent with respect to the amount of graphite particles. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art to determine the optimal workable ranges for the material, and such a determination would not require undue experimentation.

19. Regarding claim 15, the reference teaches resin impregnation of about 45 to 65%, by weight, of the friction material. The reference further teaches the resin compositions of the claim. The difference between the claimed amount and the disclosed amount of resin impregnation is slight, and it is reasonably presumed that the

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optimal amount, which would be determined by one of ordinary skill in the art, would overlap the claimed range without a patentable difference. Absent a showing of unexpected results with the specific amounts, the position remains that the effects of varying the amount of resin impregnation are predictable and obvious to one of ordinary skill in the art.

### **Conclusion**

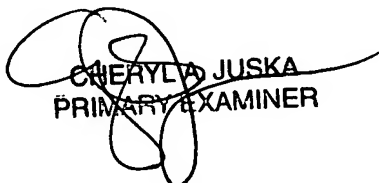
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arden B. Sperty whose telephone number is (571)272-1543. The examiner can normally be reached on M-Th, 08:00-16:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Arden B. Sperty  
Examiner  
Art Unit 1771

April 27, 2005

  
CHERYL A. JUSKA  
PRIMARY EXAMINER